

REMARKS

Claims 46, 48, 50-54 and 56, 58-62 are currently pending in this application. Claims 46 and 54 have been amended and claims 47, 49, 55 and 57 have been cancelled. No new matter has been added to this application.

Rejection of Claims 46, 48, 52-54, 56 and 60 under 35 U.S.C. § 102 (e)

The Examiner has rejected claims 46, 48, 52-54, 56 and 60 under 35 U.S.C. § 102 (e) as being anticipated by U.S. Patent No. 6,898,307 (Harrington). The Examiner contends that Harrington teaches Applicant's invention as claimed. Applicant respectfully traverses the rejection.

The present invention is directed to a method for utilizing augmented reality (AR) technology to combine real and virtual worlds together to provide an interface for a user to sense and interact with virtual objects in the real world. Video data comprising images of a moving model plane having markers is provided. The markers calibrate a camera to track the motion of the model plane. A pose of the moving model plane is determined according to the markers in the video data and calibration results. A three dimensional image data model of a product is provided in a pose corresponding to the pose of the moving model plane. An image correspondence between the camera calibration results associated with the moving model plane and the three-dimensional image data model is determined. A 3D model of the product based on the image correspondence is rendered. An augmented reality video is generated by superimposing the rendered 3D model of the product on the moving model plane in the video data.

Harrington discloses a system for interacting with a real world item such as a piece of paper with a virtual display of imagery and/or text to give the illusion of holding a printed version of an electronic document. A blank piece of paper is disposed within a field of view and control of a user so that manipulation of the

real item is intended to be communicative of user instructions. The item is selectively positionable by the user for purposes of communicating certain instructions to an applications program controlling the display.

Unlike the present invention, Harrington deals with the 3D manipulation of a 2D object. As such, the positioning of the paper on the screen is an issue as well as its depth (whether type is larger or smaller). However Harrington, does not need to concern itself with the pose of the object (i.e., the 3D spatial position of the object). The present invention is directed to the creation of an augmented reality video in which a 3D image of an object is augmented into a video stream. Because the object itself is a 3D object, the pose of the object (i.e., the direction and angle of the object) is critical in creating an image model that reflects the object from the desired visual perspective. This problem is neither recognized nor addressed by Harrington since Harrington is concerned with a 2D object. Applicants have amended independent claims 46 and 54 to recite that the step of "creating a three dimensional image data model of a product in a pose corresponding to the pose of the moving model plane". Applicants respectfully submit that Harrington does not perform this step since Harrington is not concerned with the pose of an object. As such, Applicants submit that Harrington does not teach or disclose Applicants' invention as recited in independent claims 46 and 54. Claims 48, 52, 53, 56 and 60, being dependent upon independent claims 46 and 54, are also not taught or disclosed by Harrington. Applicants respectfully request that the rejection of claims 46, 48, 52-54, 56 and 60 under 35 U.S.C. § 102 (e) be withdrawn.

Rejection of Claims 50, 51, 58, 59, 61 and 62 under 35 U.S.C. § 103 (a)

The Examiner has rejected claims 50, 51, 58, 59, 61 and 62 under 35 U.S.C. § 103 (a) as being unpatentable over Harrington in view of U.S. Patent No. 7,050,603 (Rhoads). The Examiner correctly notes that Harrington does not teach a three dimensional image data model that represents an animation. The

Examiner contends that Rhoads discloses watermarks that can be embedded in two dimensional image renderings or animated 3D graphical objects and that the embedded object can be composited with a video stream to form a video program. The Examiner argues that it would have been obvious to one skilled in the art to modify Harrington's system by using projected 3D animated objects as disclosed in Rhoads. Applicants respectfully traverse the rejection.

Rhoads discloses using watermarks in video signals to associate video objects in a video sequence with object specific actions or information. Applicants respectfully submit that adding a watermark as is disclosed in Rhoads to the Harrington system would not teach or disclose Applicants' invention. Applicant's invention is directed to the editing of an augmented reality video in which a 3D object is augmented into a video stream. The 3D object can be displayed from various perspectives and angles so that certain features of the object are highlighted. As such, the pose of the 3D object is critical in augmented the appropriate view of the 3D object into the video stream. As discussed above, Harrington is directed to displaying a paper containing information into an electronic image so that user instructions can be displayed. Harrington does not teach or disclose a need for displaying a 3D object in different poses to highlight different perspectives of the 3D object. It makes even less sense for Harrington to disclose an object that is animated. Applicant respectfully submits that neither Harrington nor Rhoads, whether taken alone or in combination, teaches or disclose Applicant's invention as claimed. Applicant requests that the rejection of claims 50, 51, 58, 59, 61 and 62 under 35 U.S.C. § 103 (a) be withdrawn.


Conclusion

Applicants respectfully submit that claims 46, 48, 50-54 and 56, 58-62, as amended, are in condition for allowance and request that a timely Notice of

Appl. No. 09/915,650
Amdt. dated January 8, 2007
Reply to Office Action of October 18, 2006

Allowance be issued in this case. The Examiner is invited to contact the undersigned should he have any questions in this matter.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Michele L. Conover".

Michele L. Conover
Reg. No. 34,962
Attorney for Applicant

Date: January 8, 2006
Siemens Corporation
Intellectual Property Department
170 Wood Avenue South
Iselin, New Jersey 08830
(732) 321-3013